

AMENDMENTS TO THE DRAWINGS:

Applicant(s) submit(s) herewith 1 sheet of replacement drawings. The amendments to the drawings are as follows:

Figure 6 has been amended to illustrate a cover 16 having one or more apertures 18. The cover is disposed on the sealing ring segment(s) 10.

REMARKS

In the Office Action mailed August 8, 2006, the specification of the application was objected to for several minor informalities.

The drawings were also objected to.

Claims 11 and 19 were rejected under §112, first paragraph.

Claims 1, 6-8, and 13-16 were rejected under §102(b) for alleged anticipation by U.S. Patent 4,338,080.

Claims 1, 6, 7, and 13-15 were rejected under §102(b) for alleged anticipation by U.S. Patent 5,511,795.

Claims 2-5, 9, 10, 12, 17 and 18 were rejected under §103(a) for alleged obviousness by the '080 patent.

In view of the clarifications presented herein, it is respectfully submitted that all claims 1-19 are in condition for allowance.

A. Objection to the Specification Has Been Remedied

In accordance with the Examiner's helpful suggestions, the noted typographical errors have been corrected.

It is submitted that this objection has been remedied and should now be withdrawn.

B. Objection to the Drawings Has Been Remedied

Figure 6 has been amended to illustrate the cover and cover apertures as described in the specification on page 8, line 30 to page 9, line 6 and recited in claims 11 and 19.

A Replacement Sheet containing amended Figure 6 is enclosed herewith. No new matter has been added. Upon approval of this figure, a formal drawing of this sheet will be submitted.

It is submitted that this objection has been remedied and should now be withdrawn.

C. Rejection of Claims 11 and 19 Should Be Withdrawn

Claims 11 and 19 were rejected under §112, first paragraph for allegedly failing to comply with the enablement requirement.

It is respectfully submitted that the Replacement Sheet submitted herewith containing amended Figure 6, showing the cover 16 and its apertures 18, remedies the alleged non-enablement assertion. In addition, the specification has been amended, on page 9, line 32, to specifically refer to this depiction.

In view of the foregoing, it is respectfully submitted that this ground of rejection should now be withdrawn.

D. Rejection of Claims 1, 6-8, and 13-16 Under §102(b) Should Be Withdrawn

These claims were rejected for allegedly being anticipated by U.S. Patent 4,338,080 to Grandcolas et al. In support of this rejection, the Examiner asserted:

Grandcolas et al discloses a sealing ring assembly for a cylindrical rotary kiln and includes a plurality of sealing segments (7) which are flat band-like sections positioned about the outer surface of the kiln cylinder and positioned such that they are connected to one another by their overlapping adjacent segments (SEE Figures 3 & 4) and are made of heat resistant, lightweight sealing material (SEE column 3, lines 38 - column 4, line 2), at least one application pressure element (SEE column 3, line 10-18) to provide radial application pressure on the kiln, the pressure element forms a closed ring by the overlapping segments and is in the form of a spring (17a) serving to connect the sections.

Page 4 of the Office Action.

Before turning attention to the rejection, it is instructive to consider the subject matter of the '080 patent in further detail.

The cable controlled sealing arrangement featured in the '080 patent is mainly used in direct heated rotary kilns in the cement industry and in special waste incineration plants.

The sealing consists of a number of wearing sealing elements which are, while staying radially movable, passed through divided metal flanges and are pressed against the sealing surfaces of the rotary kiln by means of one or several rotating, weight-driven cables.

A disadvantage of using this type of sealing is the varying pressure exerted on the sealing elements. That varying pressure is due to abating normal forces in a

circumferential direction. Such varying pressure leads to an uneven sealing pressure being exerted on the sealing elements. This in turn, leads to unevenly distributed wear and tear and to leakages.

In contrast, and as explained in the present application, for example on page 6, lines 1-10, the claimed sealing assembly of the present invention applies a sealing pressure in a uniform radial manner on the rotating tube. Independent claims 1 and 13 have been specifically amended to recite this feature.

Another disadvantage of the sealing arrangement disclosed in the '080 patent are the leakages which can occur at the high number of overlapping joints of the sealing elements. This can lead to toxic gases being emitted in both a radial and an axial direction. Alternately, the large number of leakages can also result in suctioning in of secondary air. The sealing assembly of the present invention provides significantly superior sealing.

The inflexible and hard surface of the graphite segments of the sealing arrangement disclosed in the '080 patent is a further disadvantage. Contrary to the flexible and softer carbon fiber segments used in the claimed sealing assembly of the present invention, the graphite sealing elements of the '080 patent do not provide a high degree of sealing at their respective joints.

In the axial direction of the sealing arrangement disclosed in the '080 patent, further leakages occur because the chambering of the individual sealing elements features gaps which open up at the joints of the chamber flanges. This problem is essentially avoided by the sealing assembly of the present invention.

Turning attention to the present rejection, it will now be appreciated that the '080 patent fails to anticipate, i.e. identically disclose, the subject matter recited in the claims at issue.¹ Specifically, the '080 patent fails to disclose a ring sealing assembly that provides a "uniform radial application pressure" (claims 1 and 6-8), or a "uniform radial pressure on said sealing elements" (claims 13-16). Instead, as explained, the '080 patent discloses a sealing arrangement utilizing one or more rotating, weight-driven

¹ The Examiner is respectfully reminded that "[a]nticipation under Section 102 can be found only if a reference shows exactly what is claimed." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). "For a prior art reference to anticipate in terms of 35 U.S.C. §102, every element of the claimed invention must be identically shown in a single reference." *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

cables that exert a varying pressure on the sealing elements. Furthermore, as explained, the sealing arrangement of the '080 patent fails to provide the same degree of sealing as do the sealing assemblies recited in the pending claims. Thus, the '080 patent fails to anticipate the claims at issue.

In view of the amendments to independent claims 1 and 13, and the distinguishing remarks presented herein, it is submitted that claims 1 and 13, and claims 6-8 and 14-16 dependent therefrom, are allowable over the '080 patent.

E. Rejection of Claims 1, 6, 7 and 13-15 Under §102(b) Should Be Withdrawn

These claims were rejected on grounds that:

Laubach et al discloses a sealing medium seal for the sealing of a rotary drum of a drum-shaped furnace and includes a plurality of sealing segments (1) of flat like overlapping band sections positioned about the outer surface of the drum (SEE Figures 6 & 7) made of elastic, flexible sealing materials, at least one application pressure element (5) positioned on the sealing segments to provide a radial application pressure to secure the segments to the drum. The pressure element (5) is a closed ring (SEE Figures 4 and 6-9).

Pages 4-5 of the Office Action.

As explained below, U.S. Patent 5,511,795 to Laubach et al. is directed to a significantly different application and assembly than the sealing assembly of the pending claims.

Because of its flexible pneumatic sealing element, the type of sealing arrangement disclosed in the '795 patent is not suited to being used on a hot operated indirect heated rotary kiln, and in no way discloses the subject matter of the claims at issue.

The actual sealing featured in the '795 patent occurs on the cold outer surface or curvature of the rotary kiln shell. This sealing can only be applied in this area and due to its segmental design it does not offer a high degree of sealing against the emittance of carbonization gas and the drawing in of secondary air. Uneven wear and tear of the sealing due to tolerance-induced, out-of-roundness of the rotary kiln shell results in a less than desirable sealing rate, and a sealing rate less than 100 %.

As noted, due to the material used in this type of sealing arrangement, the assembly disclosed in the '795 patent is not suited for hot operated areas.

Of the rejected claims, claims 1 and 13 are independent claims. Each of these claims recite a ring sealing assembly that is "adapted for use in an indirectly heated rotary tubular kiln." This language denotes the high thermal stability and high temperature characteristics of the recited sealing assemblies. This high thermal stability feature is not disclosed in the '795 patent. As explained, that patent is directed to lower temperature applications. Since independent claims 1 and 13 are not anticipated by the '795 patent, neither are claims 6, 7 and 14-15 dependent therefrom.

For at least these reasons, it is respectfully submitted that the '795 patent does not anticipate, i.e. identically disclose, the subject matter of claims 1, 6, 7 and 13-15.

F. Rejection of Claims 2-5, 9, 10, 12, 17 and 18 Under §103(a) Should Be Withdrawn

These claims were rejected by the Examiner as follows:

Grandcolas et al discloses the applicants primary inventive concept as stated above, but with regard to claims 2-5, 9, 12, and 17, does not particularly discuss the properties of the material used or give detail of the structure make up of the material used. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a material to meet the parameters as disclosed by the applicant, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. With regard to claims 10 and 18, Grandcolas et al does not disclose the pressure in which the seal is applying. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the application pressure element exert a pressure of less than 300kN, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Pages 5-6 of the Office Action.

It is respectfully submitted that this ground of rejection should be withdrawn. For at least the following reasons, the '080 patent fails to adequately teach the subject matter of claims 2-5, 9, 10, 12, 17 and 18.

First, the present rejection under §103 must be withdrawn because the '080 patent fails to provide any suggestion as to how the recited features of the claims would be arrived at. "[E]ven when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference." *In re Kotzab*, 208 F3d 1352, 54 USPQ2d 1308 (Fed. Cir. 2000).

As previously explained, the '080 patent describes a sealing arrangement that utilizes a number of sealing elements that are pressed against the sealing surfaces of rotary kilns by one or more rotating, weight-driven cables. These cables provide varying pressure. The '080 patent entirely fails to provide the required motivation to use the sealing assemblies as recited in the pending claims in which a uniform radial pressure is exerted.

Recognizing that the requisite motivation for such a design change is missing in the '080 patent, the Examiner asserted that designing the sealing assemblies of the claims at issue would be "obvious to one having ordinary skill in the art." It is respectfully submitted that this is not the proper standard for a rejection under §103. Instead, in order to properly reject a claim under §103, "a showing of a suggestion, teaching, or motivation...is an essential evidentiary component of an obviousness holding." *Brown v. Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 56 USPQ2d 1456 (Fed. Cir. 2000).

It is also submitted that the Examiner's basis for the rejection, based upon "obvious to one having ordinary skill in the art", is simply "an obvious to try" rejection. Those types of rejections have long been held to be improper. "An 'obvious-to-try' situation exists when a general disclosure may pique the scientist's curiosity, such that further investigation might be done as a result of the disclosure, but the disclosure itself does not contain a sufficient teaching of how to obtain the desired result, or that the claimed result would be obtained if certain directions were pursued." *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990). The present situation is exactly like that described by the court in the *Eli Lilly* case. That is, the '080 patent itself does not contain a sufficient teaching of how to obtain the desired result or that the claimed result would be obtained if certain directions were pursued.

Another deficiency of the present rejection is that the 'obvious to try' analysis is based upon the present application. "[A] proper analysis under §103 requires...the suggestion...must be founded in the prior art, not in the applicant's disclosure." *Velandar v. Garner*, 348 F.3d 1359, 68 USPQ2d 1769 (Fed. Cir. 2003). That is, the present rejection is based upon consideration of terms and details in the present

application.² This is improper.

In addition to the foregoing, it is also respectfully submitted that the amendments to independent claims 1 and 13, sufficiently distinguish dependent claims 2-5, 9, 10, 12, 17 and 18, such that those claims are allowable over the '080 patent. As previously explained, that patent describes a sealing arrangement that utilizes one or more weight-driven cables. The resulting sealing that occurs from that type of arrangement is inferior to the "uniform radial" pressure that occurs from the sealing assembly of the claims at issue. A practitioner interested in designing an improved sealing assembly would not be motivated to utilize the recited sealing assembly of the pending claims, particularly in view of the '080 patent's teaching of using weight-driven cables.

In view of the foregoing, it is respectfully submitted that the present obviousness rejection should be withdrawn.

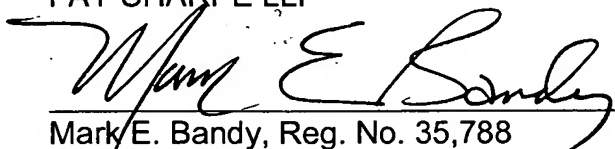
G. Conclusion

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (Claims 1-19) are now in condition for allowance.

Respectfully submitted,

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February 5, 2007
Date


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² In the rejection of claims 2-5, 9, 12, and 17, the Examiner asserted that, "[i]t would have been obvious...to choose a material to meet the parameters as disclosed by the applicant." As for the rejection of claims 10 and 18, the Examiner asserted, "[i]t would have been obvious...to have made the application pressure element exert a pressure of less than 300 kN." That value was obtained from the present application.

<input type="checkbox"/> transmitted to the USPTO by facsimile in accordance with 37 CFR 1.18 on the date indicated below.	
Express Mail Label No.:	Signature: <i>Mary Ann Temesvari</i>
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APPENDIX